

THERMAL SYSTEMS

# Pramo

Innovative system for backend assembly of electronics components



Pramo  
Drying | Hardening



# Drying | Hardening

High quality and reliable  
functionality of electronics

## Drying and curing of end devices Equipment for backend assembly

**Wind power renewable energy is playing an increasingly important role in the energy mix, electric drives have to deliver more and more power while consuming less energy. Rapid charging stations for hybrid and all-electric drives are in increasing demand and powerful battery storage devices are designed to help stabilise the power grid. They all have one thing in common – they all have control electronics and electronic housing assemblies inside them whose reliability has to be guaranteed at all times.**

These highly complex assemblies use several manufacturing techniques, which are all there to ensure the reliability of the assembly. Depending on the application and requirements, the modules are painted to protect them from corrosion and environmental influences or have to be firmly integrated into the housing by means of encapsulation or adhesive technology. The drying and curing of different materials is an essential step of the process.

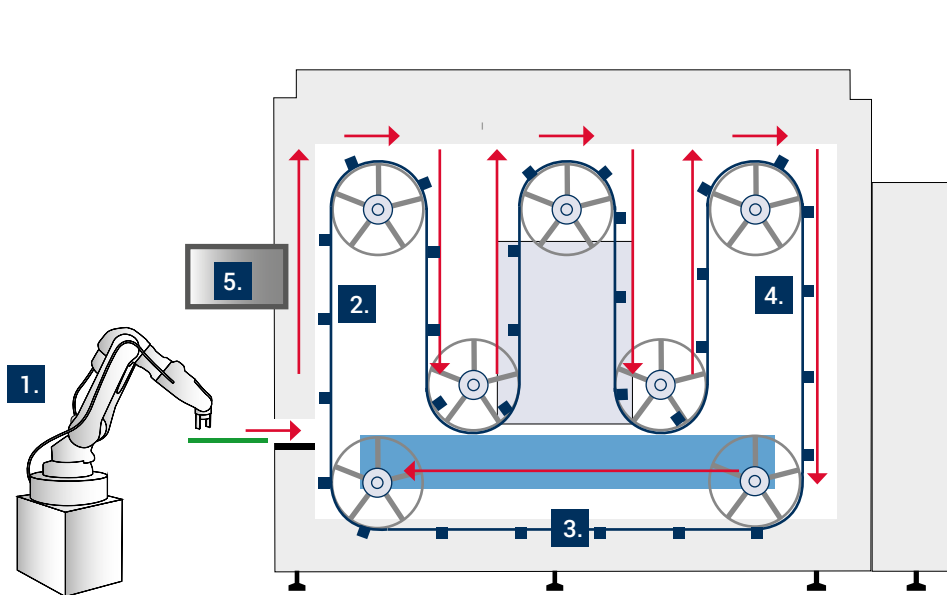
Rehm Thermal Systems offers innovative drying and curing processes for this field of application that meet any requirement. The new Pramo drying system guarantees best drying and curing results thanks to reliable looped band transport. The flexible carrier receptors are interchangeable, which means various assemblies – also special forms – can be guided safely and reliably through the plant.

# Technical Details

## The Pramo at a glance

The assemblies on product carriers are transported through the system in the Pramo continuous dryer with "shuttles" – passing through several zones in which they are heated up to the appropriate temperature and then maintained at the set

temperature for the drying / hardening process. Cycle time depends on the time the assemblies need to harden the materials within the drying system according to specifications.



**minimal**  
footprint



### 1. Loading | Unloading

A robot / handling system loads and unloads the components into the product carriers. Manual loading and unloading can be an alternative.

### 4. Measuring nacelle

The gondolas / carrier boats are equipped with a clamping unit for automatic loading with a robot. A measuring cable with prepared parts and memory meter is can be easily used via a quick-action fixation.

### 2. Looped transport

The assembly is transported through the machine on a circular product carrier transport. This cycle time is adjustable. The transport is carried out in loops in order to achieve the longest possible throughput times and process a high number of units. This reduces the surface area as well as the height of the system. Depending on the number of product carriers, the Pramos is available as a 2-, 3 -, or 4-looped transport.

### 5. Software

The system is controlled by software via a touchscreen user interface. All relevant process parameters such as throughput time and temperature are documented via a barcode on the product carrier nacelle and, if necessary, transferred to an MES system. SMEMA interfaces provide for the integration of the system into any production line.

### 3. Cooling

The assemblies for downstream processes are cooled in the cooling section. This allows the assemblies to be subsequently processed immediately. Each segment has cooled air blown onto the carrier with the assembly. The waste heat is transferred from the internal to the external water circuit via a heat exchanger and thus removed from the production room in an energy-saving way. Alternatively there is a residual management system with 2 cooler/filter units for cold condensation available instead of the heat exchanger. The filter can be easily cleaned in an ultrasonic bath for maintenance purposes. The return line can alternatively be run as an additional heating zone when the parts are unloaded when warm (warm function test).

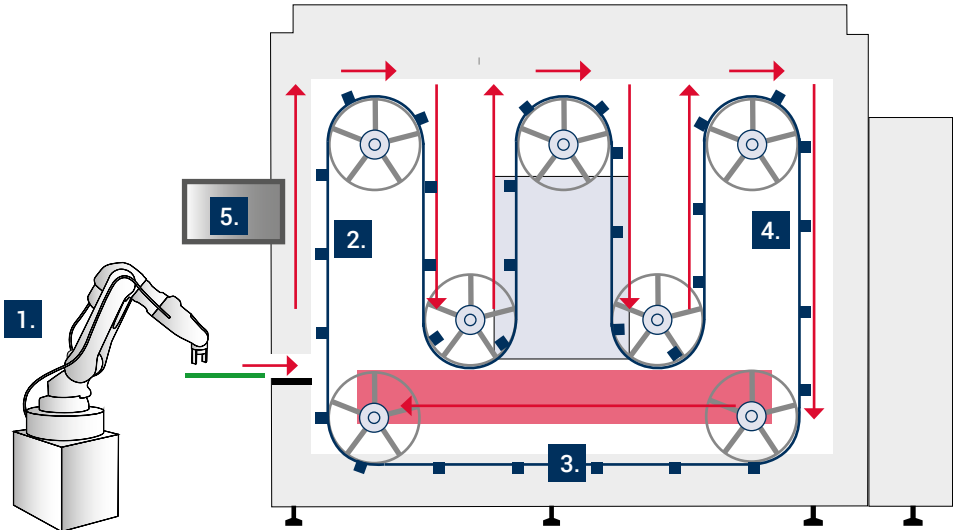


# Hot-Function test

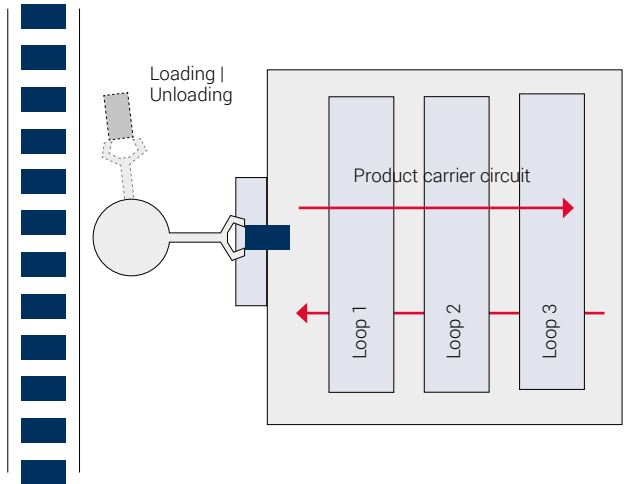
## Flexible solution with Pramo

The Pramo offers flexibility and security in the design and implementation of your testing tasks, including with warm function testing. Stable circular product carrier transport ensures safe transport of the assembly through the system and absolute process stability. This gives the Pramo sufficient ca-

capacity to reliably adhere to the desired test temperature, even when processing large parts in a short cycle time. In order to guarantee the removal of the assemblies at the appropriate temperature, the product carrier return is designed as an additional heating zone.



### Line solutions

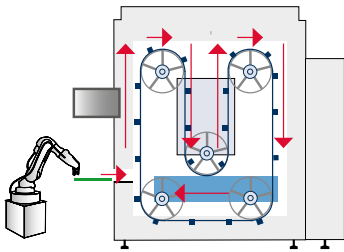


Example Pramo with 3 loops

# Data and facts

## Details for Pramo

### 2 - loop principle



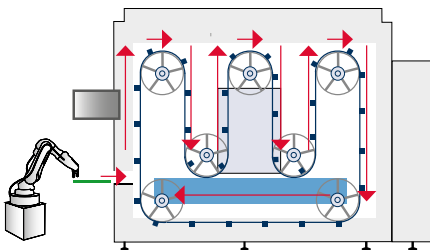
#### System data

Length   Width   Height:	2700 mm   2800 mm   3150 mm
Weight:	6000 kg
Max. oven temperature:	150 °C
Power supply:	52 kW

#### Board carrier

Length   Width:	1520 mm   200 mm
Usable clearance above carrier:	250 mm
Number of carriers in system:	27 pieces

### 3 - loop principle



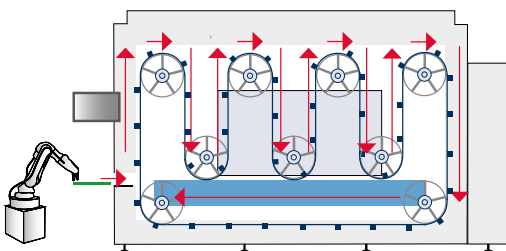
#### System data

Length   Width   Height:	3700 mm   2800 mm   3150 mm
Weight:	8000 kg
Max. oven temperature:	150 °C
Power supply:	80 kW

#### Board carrier

Length   Width:	1520 mm   200 mm
Usable clearance above carrier:	250 mm
Number of carriers in system:	39 pieces

### 4 - loop principle

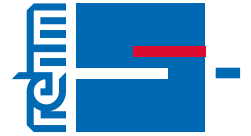


#### System data

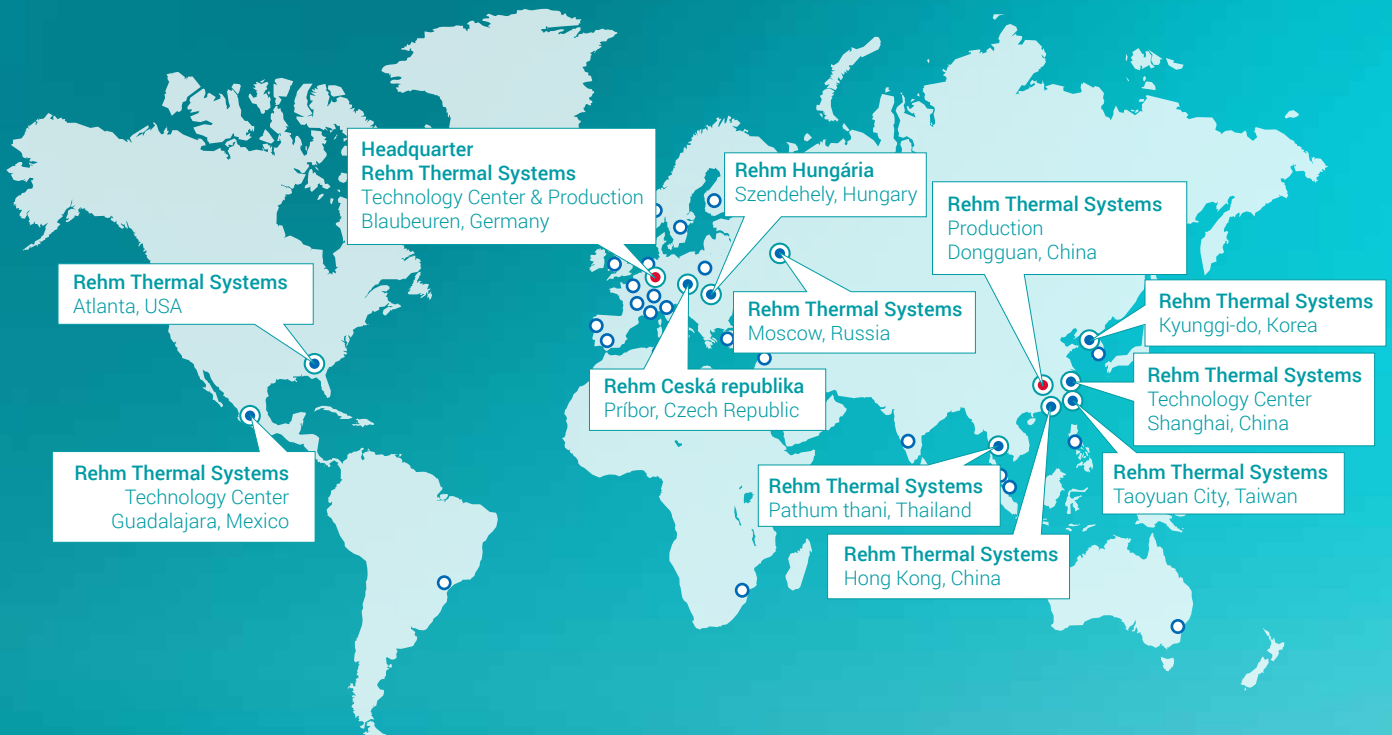
Length   Width   Height:	4700 mm   2800 mm   3150 mm
Weight:	11000 kg
Max. oven temperature:	150 °C
Power supply:	108 kW

#### Board carrier

Length   Width:	1520 mm   200 mm
Usable clearance above carrier:	250 mm
Number of carriers in system:	58 pieces



THERMAL SYSTEMS



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## Rehm Worldwide

As a leading manufacturer of innovative thermal system solutions we have customers on every continent. With our own locations in Europe, America and Asia as well as 27 agencies in 24 countries we are able to serve the international markets quickly and to offer outstanding on-site service – worldwide and round the clock!

- Location
- Production facility
- Representation



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